

ROCK DECLARATION

Exhibit A

CURRICULUM VITAE

Name: Kenneth L. Rock
Address: 145 Walnut Hill Road, Chestnut Hill, MA 02167
Date of Birth: April 3, 1952

Education:

1974 B.A. Washington University (Biology)
1978 M.D. University of Rochester, Rochester, NY
(Medicine)

Postdoctoral Training: Residencies:

1979-1983 Peter Bent Brigham Hospital, Boston, MA
(Pathology)

Research Fellowships:

1978 University of Rochester School of Medicine,
Rochester, NY, Postdoctoral Fellow with Drs.
J. Kappler and P. Marrack

1980-1982 Harvard Medical School, Boston, MA,
Postdoctoral Fellow with Dr. Baruj
Benacerraf, Department of Pathology

Licensure and Certification:

1983-Present Massachusetts License Registration
1983 American Board of Pathology, Certificate

Academic Appointments:

1982-1983 Instructor in Pathology, Harvard Medical
School, Boston, MA
1983-1986 Assistant Professor in Pathology,
Harvard Medical School, Boston, MA
1986-1997 Associate Professor in Pathology,
Dana Farber Cancer Institute, and Harvard
Medical School, Boston, MA
1997-present Chairman and Professor of Pathology
University of Massachusetts Medical Center
Worcester, MA

Clinical Appointments:

1991-1997 Clinical Coordinator of Pathology, Dana-Farber Cancer Institute
Boston, MA
1991-1997 Consultant in Pathology, Brigham & Women's Hospital, Boston, MA
1997-present Chairman of Pathology, University of Massachusetts Medical Center

Curriculum Vitae Continued: Dr. Kenneth L. Rock

Honors:

1974	Summa cum laude, B.A., Washington University, St. Louis, MO
1974	Phi Beta Kappa
1995-1998	Co-Chairman, then Chairman, FASEB Summer Immunology Conferences.
1998	Merit Award, NIH
2003	Outstanding educator award, UMass Medical School
2003	Benacerraf Lecture, Harvard Medical School

Editorial Board:

1987-1992	Associate Editor, Journal of Immunology
1992-1996	Section Editor, Journal of Immunology
1997-2003	Deputy Editor, Journal of Immunology
1994	Section Editor, Current Opinion in Immunology
1992-Present	Cellular Immunology

Professional Societies:

1984-Present	American Association of Immunologists
1990-Present	American Association for the Advancement of Science
1990-1997	American Association for Laboratory Animal Science.
1997-Present	College of American Pathologists
1997-Present	United States and Canadian Academy of Pathology
1997-Present	New England Society of Pathologists

Educational Committees/Activities:

1981-1988	Liaison between Department of Pathology and M.D.-Ph.D. Programs, Harvard Medical School, Boston, MA
1982-1997	Faculty, Committee on Immunology, Harvard Medical School, Graduate Program
1985-1993	Faculty, Cell and Developmental Biology, Harvard Medical School, Graduate Program
1985-1996	Co-organizer, Committee of Immunology Seminar Series, Harvard Medical School
1986-1996	Lecturer, Immunobiology 204 a,b, Harvard Medical School
1991-1996	Principle Faculty, HST 175, Cellular and Molecular Immunology, Harvard Medical School
1993-1997	Faculty, Harvard Medical School & Massachusetts Institute of Technology, M.D. HST Program
1995	Tutor, Identity, Microbes and Defense, Harvard Medical School.
1997-present	Faculty, Immunology and Virology, University of Massachusetts Medical Center, graduate program
1998-2002	Lecturer, Advanced Immunology 770, University of Massachusetts Medical Center

Curriculum Vitae Continued: Dr. Kenneth L. Rock

1998-present	Lecturer, Biology of Disease University of Massachusetts Medical Center
1999-2003	Block leader and lecturer, Core curriculum University of Massachusetts Medical Center
2002-present	Lecturer, Advanced Topics in Tumor Biology University of Massachusetts Medical Center

Administrative and Professional Committees

1989-1997	Co-chairman, Animal Care and Use Committee Dana Farber Cancer Institute
1993-1996	Membership Committee, American Association of Immunologists
1995-1997	Block Co-Chairman, then Block Chairman, Program Committee, American Association of Immunologists.
1997-present	Executive council, University of Massachusetts Medical Center
1997-1999	Chancellor's Advisory Committee, University of Massachusetts Medical Center
1997-1999	Clinical Policies Committee Executive Council, University of Massachusetts Medical Center
1997-1999	Group Practice Advisory Council, University of Massachusetts Medical Center
1998-2001	Cancer Center Executive Committee, University of Massachusetts Medical Center
1998-2007	Clinical Chairs Council, University of Massachusetts Medical Center
1999-2007	Research Advisory Council, University of Massachusetts Medical Center
2000-present	Immunology Training Program Steering Committee, University of Massachusetts Medical Center
2001-2003	UMass Cancer Center Advisory Board
2001	Nominating Committee, American Association of Immunologists
2003-2007	Cancer Immunology Task Force, American Association of Cancer Research
2006	Nominating Committee, American Association of Immunologists
2007-present	Finance Committee, American Association of Immunologists

Industrial Activities:

1992	Scientific founder, Proscript Inc. (MyoGenics Inc.), Cambridge, MA. (acquired by Millennium Pharmaceuticals)
1992-1999	Scientific advisory board and consultant, Proscript Inc. (formerly MyoGenics Inc.), Cambridge, MA.
1994	Scientific founder, Corixa Corp., Seattle, WA
1994-2005	Scientific consultant, Corixa Corp., Seattle, WA
2000-2005	Founding scientific board, Diamed (formerly SPRL), Cambridge, MA
2005	Consultant, Ipsen
2006-present	Scientific advisory board and consultant, Evogenix

Bibliography:

Journals:

1. Gottlieb DI, Rock KL, Glaser L. A gradient of adhesive specificity in the developing avian retina. 1976. *Proc. Natl. Acad. Sci. USA*, 73:410-414.
2. Swierkosz JE, Rock KL, Marrack P, Kappler J. The role of H-2 linked genes in helper T cell function. II. Isolation on antigen-pulsed macrophages of two separate populations of F1 helper T cells each specific for Ag and one set of parental H-2 products. 1978. *J. Exp. Med.*, 147:554-570.
3. Letvin NL, Rock KL, Nepom JT, Gramm CF, and Benacerraf B. Antibody responses to Trinitrophenyl (TNP)-L-Glutamic Acid 60-L-Alanine30-L-Tyrosine (GAT) in microcultures: Anti-hapten and anti-carrier responses appear to be under separable control. 1982. *Cell. Immunol.* 71:89-98.
4. Sy M-S, Lee SH, Tsurufuji M, Rock KL, Benacerraf B, and Finberg R. Two distinct mechanisms regulate the *in vivo* generation of cytotoxic T cells. 1982. *J. Exp. Med.* 156:918-923.
5. Rock KL. The role of Ia molecules in the activation of T lymphocytes. I. The activation of an IL-1 dependent IL-2 producing T cell hybridoma by Con A requires an interaction which is not H-2 restricted, with an Ia-bearing accessory cell. 1982. *J. Immunol.* 129:1360-1366.
6. Rock KL, Barnes MC, Germain RN, and Benacerraf B. The role of Ia molecules in the activation of T lymphocytes. II. Ia restricted recognition of allo K/D antigens is required for Class I MHC stimulated mixed lymphocyte responses. 1983. *J. Immunol.* 130:457-462.
7. Rock KL, and Benacerraf B. The role of Ia molecules in the activation of T lymphocytes. III. Antigen-specific, Ia restricted, Interleukin 2-producing T cell hybridomas with detectable affinity for the restricting I-A molecules. 1983. *J. Exp. Med.* 157:359-364.
8. Rock KL, and Benacerraf B. Inhibition of antigen-specific T lymphocyte activation by structurally related Ir gene controlled polymers: Evidence of specific competition for accessory cell antigen-presentation. 1983. *J. Exp. Med.* 157:1618-1634.
9. Rock KL, and Benacerraf B. The role of Ia molecules in activation of T lymphocytes. IV. The basis of the thymocyte IL-1 response and its possible role in the generation of the T cell repertoire. 1984. *J. Immunol.* 132:1654.
10. Rock KL, and Benacerraf B. Thymic T cells are driven to expand upon interaction with self-Class II MHC gene products on accessory cells. 1984. *Proc. Natl. Acad. Sci. USA* 81:1221-1224.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

11. Rock KL, and Benacerraf B. Selective modification of a private I-A allo stimulating determinant(s) upon association of antigen with an antigen-presenting cell. 1984. *J. Exp. Med.* 159:1238.
12. Yeh ETH, Benacerraf B, and Rock, K.L. Analysis of thymocyte MHC specificity with thymocyte hybridomas. 1984. *J. Exp. Med.* 160:799.
13. Rock KL, Benacerraf B, and Abbas AK. Antigen-presentation by hapten-specific B lymphocytes. I. Role of surface immunoglobulin receptors. 1984. *J. Exp. Med.* 160:1102-1113.
14. Rock KL, Yeh ETH, and Benacerraf B. Selection of thymocyte MHC restriction specificity in vitro. 1984. *J. Mol. Cell. Immunol.* 1:311-320.
15. Rock KL, and Benacerraf B. Inhibition of antigen-specific T lymphocyte activation by structurally related Ir gene controlled polymers. II. Competitive inhibition of I-E restricted antigen-specific T cell responses. 1984. *J. Exp. Med.* 160:1864-1879.
16. Abbas AK, Haber SI, and Rock KL. Antigen-presentation by hapten-specific B lymphocytes. II. Specificity and properties of antigen-presenting B lymphocytes, and function of immunoglobulin receptors. 1985. *J. Immunol.* 135:1661-1667.
17. Falo LD Jr, Sullivan K, Benacerraf B, Mescher MF, and Rock KL. Analysis of antigen-presentation by metabolically inactive accessory cells and their isolated membranes. 1986. *Proc. Natl. Acad. Sci. USA*, 82:6647-6651.
18. Rock KL, Yeh ETH, Gramm CF, Haber SI, Reiser, H, and Benacerraf B. TAP, a novel T cell activating protein involved in the stimulation of MHC restricted T lymphocytes. 1986. *J. Exp. Med.* 163:315-33.
19. Reiser H, Yeh ETH, Gramm CF, Benacerraf B, and Rock KL. The genes encoding T cell activating protein, TAP, map to the Ly 6 locus. 1986. *Proc. Natl. Acad. Sci. USA* 83:2954-2958.
20. Yeh ETH, Reiser H, Benacerraf B, and Rock KL. The expression, function, and ontogeny of a novel T cell activating protein, TAP, in the thymus. 1986. *J. Immunol.* 137:1232.
21. Rock, K.L., Haber SI, Liano D, Benacerraf B, and Abbas AK. Antigen-presentation by hapten-specific B lymphocytes. III. Analysis of the immunoglobulin dependent pathway of antigen-presentation to Interleukin 1 dependent T lymphocytes. 1986. *Eur. J. Immunol.* 16:1407-1212.
22. Falo LD Jr, Benacerraf B, and Rock KL. Phospholipase pretreatment of antigen pulsed accessory cells selectively inhibits antigen-specific MHC restricted, but not allospecific stimulation of T lymphocytes. 1986. *Proc. Natl. Acad. Sci. USA* 83:6694-6697.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

23. Yeh ETH, Reiser H, Benacerraf B, and Rock KL. Expression of a novel T cell activating protein (TAP) in peripheral lymphocyte subsets. 1986. *Proc. Natl. Acad. Sci. USA*, 83:7242-7428.
24. Reiser H, Ottegen H, Yeh ETH, Terhorst C, Low MG, Benacerraf B, and Rock KL. Structural characterization of the TAP molecule: A phosphatidylinositol-linked glycoprotein from the T cell receptor/T3 complex and Thy-1. 1986. *Cell*, 47:365-370.
25. Falo LD Jr, Haber SI, Herrmann S, Benacerraf B, and Rock KL. Characterization of antigen association with accessory cells. I. Specific removal of processed antigens from the cell surface by phospholipases. 1987. *Proc. Natl. Acad. Sci. USA*, 84:522-526.
26. Reiser H, Coligan J, Benacerraf B, and Rock KL. Biosynthesis, glycosylation and partial N-terminal amino acid sequence of the TAP molecules. 1987. *Proc. Natl. Acad. Sci. USA*, 84:3370.
27. Falo, LD, Jr, Benacerraf, B, Rothstein, L, and Rock, KL. Cerulenin is a potent inhibitor of antigen processing by antigen-presenting cells. 1987. *J. Immunol.* 139:3918-3923.
28. Yeh ETH, Reiser H, Daley J, and Rock KL. Stimulation of T cells via the TAP molecule, a member in a family of activating proteins encoded in the Ly-6 locus. 1987. *J. Immunol.* 138:91-97.
29. Yeh ETH, Reiser H, Bamezai A, and Rock KL. TAP transcription and phosphatidylinositol linkage mutants are defective in activation through the T cell receptor. 1988. *Cell* 52:665-674.
30. Reiser H, Coligan J, Palmer E, Benacerraf B, and Rock KL. Cloning and expression of a cDNA for the T-cell activating protein (TAP). 1988. *Proc. Natl. Acad. Sci. USA*, 85:2255-2259.
31. Bamezai A, Reiser H, and Rock KL. T cell receptor/CD3 negative variants are unresponsive to stimulation through the Ly-6 encoded molecule, TAP. 1988. *J. Immunol.* 141:1423-1428.
32. Michalek M, Benacerraf B, and Rock KL. Two genetically identical antigen-presenting cell clones display heterogeneity in antigen processing. 1989. *Proc. Natl. Acad. Sci. USA* 86:3316-3320.
33. Bamezai A, Goldmacher V, Reiser H, and Rock KL. Internalization of phosphatidylinositol-anchored lymphocyte proteins. I. Documentation and potential significance for T cell stimulation. 1989. *J. Immunol.* 143: 3107-3116.
34. Dang LH, Michalek M, Takei F, Benacerraf B, and Rock KL. Role of ICAM-1 in antigen-presentation demonstration by ICAM-1 defective mutants. 1989. *J. Immunol.* 144:4082-4091.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

35. Rock KL, Rothstein L, and Gamble S. Generation of class I MHC restricted T-T hybridomas. 1990. J. Immunol. 145:804-811.
36. Rock KL, Gamble S, and Rothstein L. Presentation of exogenous antigen with class I major histocompatibility molecules. 1990. Science 249:918-921.
37. Rock KL, Rothstein L, Gamble S, and Benacerraf B. Reassociation with 2-microglobulin is necessary for Kb class I-major histocompatibility complex binding of exogenous peptides. 1990. Proc. Natl. Acad. Sci. USA. 87:7517-7521.
38. Rock KL, Gamble S, Rothstein L, and Benacerraf B. Reassociation with 2-microglobulin is necessary for Db class I major histocompatibility complex binding of exogenous influenza peptide. 1991. Proc. Natl. Acad. Sci. USA. 88:301-304.
39. Michalek M, Benacerraf B, and Rock KL. Weak base amines can inhibit class I-MHC restricted antigen presentation. 1991. J. Immunol. 146:449-456.
40. Rock KL, Gamble S, Rothstein L, Gramm CF, and Benacerraf B. Dissociation of 2-microglobulin leads to the accumulation of a substantial pool of inactive class I-MHC heavy chains on the cell surface. 1991. Cell 65:611-620.
41. McGrew JT, and Rock KL. Isolation, expression and sequence of the TAP/Ly-6A.2 chromosomal gene. 1991. J. Immunol. 146:3633-3638.
42. Bamezai A, and Rock KL. Effect of ras-activation on the expression of glycosyl-phosphatidylinositol-anchored proteins on the plasma membrane. 1991. Oncogene 6:1445-1451.
43. Dang LH, and Rock KL. Crosslinking of surface immunoglobulin receptors on B lymphocytes induces LFA-1 and ICAM-1 dependent adhesion. 1991. J. Immunol. 146:3273-3279.
44. Rock, KL, Gramm CF, and Benacerraf B. Low temperature and peptides favor the formation of class I heterodimers on RMA-S cells at the cell surface. 1991. Proc. Natl. Acad. Sci., USA 88:4200-4204.
45. Pinto V, and Rock KL. Characterization of the proliferative response of a CD4-8-thymic T-lymphoma cell line to stimulation by thymic cellular elements. 1991. J. Immunol. 147:42-49.
46. McGrew JT, and Rock KL. Stimulation of human jurkat cells by monoclonal antibody crosslinking of transfected-TAP/Ly-6A.2 molecules. 1991. Cellular Immunology. 137:118-126.
47. Vidard L, Rock KL., and Benacerraf, B. The generation of immunogenic peptides can be selectively increased or decreased by proteolytic enzyme inhibitors. 1991. J. Immunol. 147:1786-1791.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

48. Bamezai A, Goldmacher VS, and Rock, KL. Internalization of glycosyl-phosphatidylinositol (GPI) anchored lymphocyte proteins. II. GPI-anchored and transmembrane molecules internalize through distinct pathways. 1992. *Eur. J. Immunol.* 22:15-21.
49. Grant EP, and Rock KL. MHC Class I-restricted presentation of exogenous Ag by thymic antigen-presenting cells in vitro and in vivo. 1992. *J. Immunol.* 148:13-18.
50. Michalek, MT, Benacerraf, B, and Rock, KL. The class II MHC-restricted presentation of endogenously synthesized ovalbumin displays clonal variation, requires endosomal/lysosomal processing, and is up-regulated by heat shock. 1992. *J. Immunol.* 148:1016-1024.
51. Rock KL, Rothstein L, Gamble S, Gramm CF, and Benacerraf B. Chemical crosslinking of class I molecules on cells creates receptive class I molecules. 1992. *J. Immunol.* 148:1451-1457.
52. Rock KL, Rothstein L, Fleischacker C, and Gamble S. Inhibition of class I and class II MHC-restricted antigen presentation by CTL's specific for an exogenous antigen. 1992. *J. Immunol.* 148:3028-3033
53. Vidard L, Rock KL, and Benacerraf B. Diversity in ovalbumin T-cell eipitopes in the H-2^S haplotype. 1992. *J. Immunol.* 149:498-504.
54. Vidard L, Rock KL, Couderc J, Mouton D, and Benacerraf B. Processing and presentation of ovalbumin in mice genetically selected for antibody response. 1992. *Eur. J. Immunology.* 22:2165-2168.
55. Vidard L, Rock KL, and Benacerraf B. Heterogeneity in antigen processing by different types of APCs. Effect of cell culture on antigen processing ability. 1992. *J. Immunol.* 149:1905-1911.
56. Falo, L.D., Jr., Colarusso, L.J., Benacerraf, B., and Rock, K.L. Serum proteases alter the antigenicity of peptides presented by class I major histocompatibility complex molecules. 1992. *Proc. Natl. Acad. Sci., U.S.A.* 89:8347-8350.
57. Rock, K.L, Rothstein, L., and Benacerraf, B. Analysis of the association of peptides of optimal length to class I-molecules on the surface of cells. 1992. *Proc. Natl. Acad. Sci.* 89:8918-8922.
58. Rock, K.L., Rothstein, L. Gamble, S., and Fleischacker, C. Characterization of Antigen-presenting cells that present exogenous antigens in association with class I MHC molecules. 1993. *J. Immunol.* 150:438-446.
59. Rock, K.L., Fleischacker, C., and Gamble, S. Peptide-Priming of Cytolytic T cell immunity in vivo using β 2-microglobulin as an adjuvant. 1993 *J. Immunol.* 150:1244-1252.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

60. Dang, L.H., Lien, L.L., and Rock, K.L. A mutant APC defective in Ag presentation expresses class II MHC molecules with an altered conformation. 1993. *J. Immunol.* 150: 4206-4217
61. Michalek, M.T., Grant, E., Gramm, C., Goldberg, and Rock, K.L. A role for the ubiquitin-dependent proteolytic pathway in MHC class I-restricted antigen presentation. 1993. *Nature.* 363: 552-554
62. Kovacsovics-Bankowski, M., Clark, K., Benacerraf, B., and Rock, K.L. Efficient MHC class I presentation of exogenous antigen upon phagocytosis by MØs. 1993. *Proc. Natl. Acad. Sci. USA* 90: 4942-4946
63. Gaczynska, M., Rock, K. L., and Goldberg, A. L. γ -Interferon and Expression of MHC genes regulate the peptidase activities of proteasomes. 1993. *Nature.* 365: 264-267
64. Pinto, V., and K. L. Rock. Extracellular matrix-induced stimulation of a CD4⁺ CD8⁺ thymic T-lymphoma cell line 1994. *Cellular Immunol.* 155: 144- 155.
65. Gaczynska, M., Rock, K. L., Spies, T., and Goldberg, A. Peptidase activities of proteasomes are differentially regulated by the MHC-encoded genes LMP2 and LMP7 . 1994. *Proc. Natl. Acad. Sci. USA* 91: 9212-9217
66. Rock, K.L., Gramm, C., Rothstein, L., Clark, K., Stein, R., Dick, L., Hwang, D., and Goldberg, A.L. Inhibitors of the proteasome block the degradation of most cell proteins and the generation of peptides presented on MHC-class I molecules. 1994. *Cell* 78: 761-771
67. Kovacsovics-Bankowski, M., and Rock, K.L. Presentation of exogenous antigens by macrophages: Analysis of MHC class I and II presentation and regulation by cytokines. 1994. *Eur. J. Immunol.* 24: 2421-2428
68. Van Kaer, L., Ashton-Rickardt, P.G., Eichelberger, M., Gaczynska, M., Nagashima, K., Rock, K.L., Goldberg, A.L., Doherty, P.C., and Tonegawa, S. Altered peptidase and antiviral activities in LMP2 mutant mice. 1994. *Immunity*, 1: 533-541
69. Kovacsovics-Bankowski, M., and Rock, K.L. A phagosome-to-cytosol pathway for exogenous antigens presented on MHC class I molecules. 1995. *Science.* 267: 243-246.
70. Bamezai, A, Palliser, D., McGrew, J., Higgins, K., Lacy, E., and Rock, K.L. Regulated expression of Ly-6A.2 is important for T cell development. 1995. *J. Immunol.* 154: 4233-9.
71. Bamezai, A., Lacy, E., and Rock, K.L. Overexpressed Ly-6A.2 mediates cell-cell adhesion by binding a ligand expressed on lymphoid cells. 1995. *Proc. Natl. Acad. Sci. USA.* 92: 4294-4298.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

72. Grant, E.P., Michalek, M.T., Goldberg, A.L., and Rock, K.L. Rate of antigen degradation by the ubiquitin-proteasome pathway influences MHC class I presentation. 1995. *J. Immunol.* 155: 3750-3758
73. Lah, T.T., Hawley, M., Rock, K.L. and Goldberg, A.L. Gamma-interferon causes a selective induction of the lysosomal proteases, cathepsins B and L, in macrophages. 1995. *FEBS Letters* 363: 85-89.
74. Falo, L.D.Jr., Kovacsocvics-Bankowski, M., Thompson, K., and Rock, K.L. Vaccination with particulate antigen induces protective tumor immunity. 1995. *Nature Medicine* 1: 649-653
75. Vidard, L., Kovacsocvics-Bankowski, M., Kraeft, S-K., Chen, L.B., Benacerraf, B., and Rock, K.L. Analysis of MHC class II presentation of particulate antigen by B lymphocytes. 1996. *J. Immunol.* 156:2809-2818
76. Rock, K.L., and Clark, K. Analysis of the role of MHC class II presentation in the stimulation of cytotoxic T lymphocytes by antigens targeted into the exogenous anigen-MHC class I presentation pathway. 1996. *J. Immunol.* 156:3721-3726
77. Gaczynska, M., Goldberg, A.L., Tanaka, K., Hendil, K.B. and Rock, K.L. Proteasome subunits X and Y alter peptidase activities in opposite ways to the homologous subunits LMP2 and LMP7. 1996. *J. Biol. Chem.* 271: 17275-17280
78. Michalek, M.T., Grant, E.P., and Rock, K.L. Chemical denaturation and modification of ovalbumin alters its dependence on ubiquitin conjugation for class I antigen presentation. 1996. *J. Immunol.* 157:617-624
79. Mazzaccaro, R.J., Gedde, M., Jensen, E.R., van Santen, H.M., Ploegh, H.L., Rock, K.L. and Bloom, B.R. Major histocompatibility class I presentation of soluble antigen facilitated by mycobacterium tuberculosis infection. 1996. *Proc. Natl. Acad. Sci. USA* 93: 11786-11791
80. Shen, Z, Reznikoff, G., Dranoff, G., and Rock, K.L. Cloned dendritic cells can present exogenous antigens on both MHC class I and class II molecules. 1997. *J. Immunol* 158:2723-2730.
81. Craiu, A., Gaczynska, M., Akopian, T., Gramm, C.F., Fenteany, G., Goldberg, A.L. and Rock K.L. Lactacystin and clasto-lactacystin β -lactone modify multiple proteasome β subunits and inhibit intracellular protein degradation and MHC class I antigen presentation. 1997. *J. Biol. Chem.* 272:13437-13445
82. Craiu, A. Akopian, T., Goldberg, A., and Rock, K.L. Two distinct proteolytic processes in the generation of an MHC class I-presented peptide. 1997. *Proc. Natl. Acad. Sci. USA.* 94:10850-10855

Curriculum Vitae Continued: Dr. Kenneth L. Rock

83. Henderson, SC., Berezovskaya, A., English, A., Palliser, D., Rock, K.L. and Bamezai, A. CD4+ T cells mature in the absence of major histocompatibility complex class I and class II expression in Ly-6A.2 transgenic mice. 1998. *J. Immunol.* 161:175-82.
85. Beninga, J., Rock, K.L. and Goldberg, AL. Interferon- γ can stimulate post-proteasomal trimming of the N-termini of antigenic peptides by inducing leucine-aminopeptidase. 1998. *J. Biol. Chem.* 273: 18734-42
86. Mandl, S., Sigal, L., Rock, K.L. and Andino, R. Poliovirus vaccine vectors elicit a cytotoxic immunity that protects against tumors. 1998. *Proc. Natl. Acad. Sci. USA* 95: 8216-21
87. Sigal, L.J., Reiser, H., and Rock, K.L. The role of B7.1 and B7.2 costimulation in CTL priming and generation of CTL effectors in vivo. 1998. *J. Immunol.* 161: 2740-2745.
88. Henderson SC. Berezovskaya A. English A. Palliser D. Rock KL. Bamezai A. CD4+ T cells mature in the absence of MHC class I and class II expression in Ly-6A.2 transgenic mice. *J. Immunology.* 161(1):175-82, 1998
89. Sigal, L.J., Crotty, S., Andino, R., and Rock, K.L. Cytotoxic T cell immunity to virus-infected non-haematopoietic cells requires presentation of exogenous antigen. 1999. *Nature* 398: 77-80
90. Russel, H., York, I, Rock, K.L. and Monaco, J. Class II antigen processing defect in two H-2^d mouse antigen processing cell lines are caused by mutations in the H2-DMA gene. 1999. *Eur. J Immunol.* 29: 905-911
91. Fernandes, DM and Rock, K.L. A mAb reactive with a 40 kDa molecule on fetal thymocytes and tumor cells blocks proliferation and stimulates aggregation and apoptosis. 1999. *J. Immunol.* 163(3):1306-14.
92. Mo, X., Cascio, P., Lemerise, K., Goldberg, AL, and Rock, KL. Distinct proteolytic processes generate the C- and N-termini of MHC class I-binding peptides. 1999. *J. Immunol.* 163: 5851-5859.
93. Mo, XY., Lelyveld, S., Craiu, A., and Rock KL, Sequences that flank subdominant and cryptic epitopes influence the generation of MHC class I-presented peptides. 2000 *J. Immunol.* 164:4003-4010
94. Fernandes, DM, Vidard, L., and Rock, K.L. Characterization of MHC class II-presented peptides generated from an antigen targeted to different endocytic compartments. 2000. *Eur. J. Immunol.* 30: 2333-43
95. Sigal, L.J., and Rock, KL. Bone Marrow-derived antigen presenting cells are required for the generation of CTL responses to viruses and use TAP-dependent and independent pathways of antigen presentation. 2000. *J. Exp. Med.* 192:1143-1150

Curriculum Vitae Continued: Dr. Kenneth L. Rock

96. Shi Y., Zheng, W., and Rock KL. Cell injury releases endogenous adjuvants that stimulate cytotoxic T cell responses. 2000 *Proc. Natl. Acad. Sci. USA* 97: 14590-95
97. Hilton, C.J., Dahl, AM., and Rock, KL. Anti-peptide antibody blocks peptide binding to MHC class I molecules in the endoplasmic reticulum. 2001 *J. Immunol.* 166: 3952-6
98. Cascio, P., Hilton, C., Kisselev, A., Rock, KL. and Goldberg, A. 26S proteasomes and immunoproteasomes produce mainly N-extended versions of an antigenic peptide. 2001 *EMBO J.* 20: 2357-66
100. Saric, T., Beninga, J., Graef, C.L., Akopian, T.N., Rock, KL. and Goldberg, AL. Major histocompatibility complex class I-presented antigenic peptides are degraded in cytosolic extracts primarily by thimet oligopeptidase. 2001 *J. Biol. Chem.* 276: 36474-81
101. Jiang, Z., Woda, B.A., Rock, K.L., Xu, Y., Savas, L., Khan, A., Pihan, G., Cai, F., Leslie, K.B, Reed, S., Xu, J. and Fanger, G.R. P504S: A new molecular marker for the detection of prostate carcinoma. 2001 *Amer. J. Surg Path.* 25:1397.
102. Shi Y. and Rock KL. Cell death releases endogenous adjuvants that selectively enhance immune surveillance of particulate antigens 2001 *Eur. J. Immunol.* 32: 155-162
103. Saric, T., Chang, S-C, Hattori, A., York, I.A., Markant, S., Rock, K.L., Tsujimoto, M., and Goldberg, A.L. ERAP1, An interferon g-induced aminopeptidase in the endoplasmic reticulum, that trims precursors to MHC class I-presented peptides. 2002 *Nature Immunology*, 3: 1169-1176
104. York, I.A., Chang, S-C., Saric, T., Keys, J.A., Favreau, J.M., Goldberg, A.L. and Rock, K.L. The interferon-inducible ER aminopeptidase ERAP1 enhances or limits antigen presentation by trimming peptides to 8-9 residues. 2002 *Nature Immunology*, 3: 1177-1184
105. York, IA, Mo, AXY, Lemerise, K., Zeng, W., Shen, Y., Abraham, CR. Goldberg, A and Rock, KL. Thimet oligopeptidase can degrade antigenic peptides in the cytosol and limit MHC class I antigen presentation 2003 *Immunity*, 18: 429-40.
106. Shi, Y., Evans, JE. and Rock, KL. Molecular identification of a danger signal that alerts the immune system to dying cells. 2003 *Nature*, 425: 516-21
107. Jiang, Z., Fanger, GR., Banner, BF., Woda, BA., Algate, P., Dresser, K., Xu J., Reed, SG, Rock, KL., and Chu, PG. A dietary enzyme: a-methylac Co A racemase (P504S) is over expressed in colon cancer. 2003 *Cancer Det and Prev.* 27:422-26

Curriculum Vitae Continued: Dr. Kenneth L. Rock

108. Shen, L., and Rock KL. Cellular antigen is the source of crosspriming antigen in vivo. 2004 **Proc. Natl. Acad. Sci.** 101: 3035-3040
109. Shen, L., Sigal, LJ, Boes, M., and Rock, KL. Critical role of cathepsin S in TAP-independent MHC class I cross presentation in vivo. 2004 **Immunity.** 45: 218-25
110. Jiang, Z., Wu, CL., Woda, BA., Iczkowski, KA., Chu, PG., Tretiakova, MS., Young, RH., Weiss, LM., Blute, RD Jr., Brendler, CB., Krauszt., Xu, JC., Rock, KL., Amin, MB., Yang, Xj. Alpha-methyacyl-CoA racemase: a muti-institutional study of a new prostate cancer marker. 2004 **Histopathology.** 45: 218-25
111. Ciampa, A., Fanger, G., Khan, A., Rock, KL, and Xu, B. Mammaglobin and CrxA-01 in pleural effusion cytology. 2004 **Cancer Cytopathology.** 102: 368-72
112. Yantis, RK., Woda, BA., Fanger, GR., Kalos, M., Whalen, GF., Tada, H., Andersen, DK., Rock, KL., and Dresser, K. KOC (K homology domain containing protein Overexpressed in Cancer). A novel molecular marker that distinguishes between benign and malignant lesions in the pancreas. 2005 **Am. J. Surg. Pathol.** 29:188-195
113. York, IA, Dahl, AM, Grant, E., and Rock, KL. A mutant cell with a novel defect in MHC class I quality control. 2005 **J. Immunol.** 174:6839-46
114. Retter, MW, Johnson, JC, Peckham, DW, Bannink, JE, Bangur, CS, Dresser, K, Cai, F, Foy, TM, Fanger, NF, Fanger, GR, Woda, B and Rock KL. Characterization of a proapoptotic anti-ganglioside GM2 monoclonal antibody and evaluation of its therapeutic effect on melanoma and small cell lung carcinoma xenografts. 2005 **Cancer Research.** 65: 6425-6534
115. Pozzi, L-A, Maciaszek, J, and Rock, KL. Both dendritic cells and macrophages can stimulate naïve CD8 T cells *in vivo* to proliferate, develop effector function and differentiate into memory cells. 2005 **J. Immunol.** 175:2071-81
116. Towne, CFI, York, IA., Jeijssen, J., Karow, ML., Murphy, AJ., Valenzuela, DM., Yancopoulos, GD., Neefjes, JJ., and Rock KL. 2005 Leucine aminopeptidase is not essential for trimming peptides in the cytosol or generating epitopes for MHC class I antigen presentation. 2005 **J. Immunol.** 175: 6605-14
117. Shi, Y, Galusha, SA., and Rock KL. 2006 Elimination of an endogenous adjuvant reduces the activation of CD8 T lymphocytes to transplanted cells and in an autoimmune diabetes model. **J. Immunol. Cutting Edge** 176: 3905-08
118. York, IA, Brehm, MA, Zendzian, S., Towne, CF., and Rock, KL. 2006 ER-Aminopeptidase I (ERAP1) trims MHC class I-presented peptides in vivo and plays an important role in establishing immunodominance. **Proc. Natl. Acad. Sci. USA.** 103: 9202-7

Curriculum Vitae Continued: Dr. Kenneth L. Rock

119. York, IA, Bhutani, N., Zendzian, S., Goldberg, AL., and Rock, KL. 2006 Tripeptidyl peptidase II (TPPII) is the major peptidase that trims long antigenic precursors, but is not required for most MHC class I antigen presentation. *J. Immunol.* 177: 1434-43
120. Chen, C-J., Shi, Y., Hearn, A., Fitzgerald, K., Golenbock, D., Akira, S., and Rock, K.L. 2006 MyD88-dependent interleukin 1 receptor signaling is essential for gouty inflammation stimulated by monosodium urate crystals. *J. Clin Invest.* 116:2262-71.
121. Jiang, Z., Chu, PG., Woda, BA., Rock, KL., Liu, Q., Hsieh, C-C., Li C., Chen, W., Duan, H., McDougal, S., and Wu, C-L. 2006 Analysis of RNA-binding protein IMP3 to predict metastasis and prognosis of renal-cell carcinomas, a retrospective study. *Lancet Oncology* 7:556-64.
122. Hernandez, MGH., Shen, L., and Rock, KL. 2007 CD40-CD40L interaction between dendritic cells and CD8+ T lymphocytes are needed to stimulate maximal T cell responses in the absence of CD4 T cell help. *J. Immunol.* 178:2844-52.
123. Towne, C.F., York, I.A., Watkin, L.B., Lazo, J.S., and Rock, K.L. 2007 Analysis of the role of Bleomycin Hydrolase in antigen presentation and the generation of CD8 T cell responses. *J. Immunol.* 178:6923-30.
124. Cuizhen L., Rock, K., Woda, B.A., Jiang, Z., Fraire, A., and Dresser, K. 2007 IMP3 Is a Novel Biomarker for Adenocarcinoma in situ of the Uterine Cervix, An Immunohistochemical Study in Comparison with p16^{INK4a} Expression. *Modern Pathology* 20:242-7
125. Chen, C-J., Kono, H., Golenbock, D., Reed, G., Akira, S., and Rock, K.L. Identification of a key pathway required for the sterile inflammatory response triggered by necrotic dying cells. 2007. *Nature Medicine*. In press.
126. Towne, CF, York, IA., Neijssen, J., Karow, ML., Murphy, J., Valenzuela, DM., Yancopoulos, JD, Neefjes, JJ., and Rock, KL. 2007. Puromycin-Sensitive Aminopeptidase limits MHC Class I Presentation in Dendritic Cells, but does not affect CD8 T cell responses during viral infections. Submitted.

Books and Reviews:

1. Gottlieb DI, Rock KL, and Glaser L. Evidence for a gradient of adhesive specificity in the developing chick retina. In: **Surface Membrane Receptors. Interface Between Cells and their Environment.** 1976. (Bradshaw RA, Frazier WA, Merrell RC, Gottlieb DI, and Hogue-Angeletti RA, eds.), Plenum Press, New York and London.
2. Rock KL, and Benacerraf B. MHC-restricted T cell activation: Analysis with T cell hybridomas. 1983. *Immunol. Rev.* 76:29-57.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

3. Rock KL. Functional T cell hybridomas. In: **Hybridomas In Biotechnology and Medicine**. 1984. (Springer TA, ed.), Plenum Press, New York.
4. Benacerraf B, and Rock KL. The interactions between Class II MHC molecules and antigens as a basis for Ir gene specificity. 1984. **Ann. Immunol.** (Institute Pasteur), 135:c:379.
5. Benacerraf B, and Rock KL. Cellular expression and function of Ir genes. In: **Immunogenetics: Its Application to Clinical Medicine**. 1984. p. 13-20.
6. Benacerraf B, and Rock KL. The significance of MHC restriction. 1985. **J. Immunogenetics**.
7. Rock KL, Falo LD Jr, and Benacerraf B. Antigen-presentation of Ir gene controlled amino acid copolymers. In: **Immunogenecity of Protein Antigens: Repertoire and Regulation**. 1986. (Sercarz E, and Berzofsky J, eds.), CRC Press.
8. Yeh ETH, Reiser H, Benacerraf B, and Rock KL. The T cell activating protein (TAP) on murine lymphocytes. 1986. **Fed. Proceedings**, 45: No. 13, p. 2991-2995.
9. Rock KL, Falo LD, Jr, Benacerraf B, and Abbas A. 1986. Processing and presentation of antigens to MHC restricted T lymphocytes. **Annales de l'Institut Pasteur**.
10. Benacerraf B, Falo LD, Jr, and Rock KL. Processing of native antigen by accessory cells and presentation of membrane bound MHC associated antigen to specific T cells. In: **"Processing and Presentation of Antigen"**. (Vogel, Pernis, and Silverstein, Eds.) Biomedical Sciences Symposium, June 1986.
11. Reiser H, Yeh ETH, Coligan J, Benacerraf B and Rock KL. Structure and function of the TAP protein and related Ly-6 linked molecules. **The Year in Immunology**, 1987. Vol. 3, pp. 80-88.
12. Rock KL, Falo LD, Jr, Michalek M, Rothstein L, and Benacerraf B. Analysis of the association of processed antigen with the APC surface. In: **The T-Cell Receptor**. 1987. (M.M. Davis and J. Kappler, eds.) ARL, Inc., New York.
13. Rock KL, Reiser H, Bamezai AK, McGrew J, and Benacerraf B. The Ly-6 locus: A multigene family encoding phosphatidylinositol-anchored membrane proteins concerned with T cell activation. **Immunological Reviews**, Vol. 111:195. 1989.
14. Benacerraf B, Michalek M, Dang LH, and Rock KL. The importance of antigen processing in determinant selection and the cell membrane as a reservoir of processed antigen. **Cold Spring Harbor Symposium**. 1989. 54:293-298.
15. Goldberg AL, and Rock KL. Proteolysis, Proteosomes and Antigen Presentation. 1992. **Nature**. 357:375-379.
16. Gaczynska, M., Rock, K.L. and Goldberg, A.L. Role of proteasomes in antigen presentation. 1994. **Enzymes and Proteins**. 46:354-69

Curriculum Vitae Continued: Dr. Kenneth L. Rock

17. Rock, K.L. and Unanue, E.R. Antigen Recognition. Editorial Overview. 1995 **Cur. Opin. In Immunology**. 7:65-68
18. Goldberg, A.L., Gaczynska, Grant, E., Michalek, M., and Rock, K.L. The functions of the Proteasome in Antigen Presentation. 1995 **Cold Spring Harbor Symposium**. 60:479-490
19. Rock, K.L. A new foreign policy: MHC class I molecules monitor the outside world. 1996 **Immunol. Today**, 17:131-137.
20. York, I., and Rock KL. Presentation of antigens on MHC class I molecules. 1996 **Ann. Rev. Immunol**. 14:369-396.
21. Mazzaccaro, R.J., Stenger, S., Rock, K.L., Porcelli, S.A., Brenner, M.B., Modlin, R.L. and Bloom, B. Cytotoxic T lymphocytes in resistance to Tuberculosis. 1998 **Adv. Exper. Med. & Biol**. 452:85-101
22. Raychaudhuri, S., and Rock, K.L. Fully mobilizing host defense: Building better vaccines. 1998. **nature biotech**. 16: 1025-1031
23. Rock KL and Goldberg, AL. Degradation of cell proteins and the generation of MHC class I-presented peptides. **Ann. Rev. Immunol**. 1999. 17:739-779
24. York, I.A., Goldberg, A.L. Mo, X.Y. and Rock, K.L. Proteolysis and class I major histocompatibility complex antigen presentation. 1999. **Immunol. Rev**. 172: 49-66.
25. Rock, KL., York, I.A., Saric, T., and Goldberg, AL. 2002 Protein degradation and the generation of MHC class I-presented peptides. **Adv. Immunology** 80:1-52
26. Goldberg, AL., and Rock, K.L. 2002 Not just research tool proteasome inhibitors offer therapeutic promise. **Nature Medicine** 8: 338-340
27. Goldberg, AL., Cascio, P., Saric, T., and Rock, K.L. 2002 The importance of the proteasome and subsequent proteolytic steps in the generation of antigenic peptides. **Mol. Immunol**. 39: 147-164
28. Rock, KL., 2003 The ins and outs of crosspriming. **Nature Immunology**. 4: 941-943
29. Rock, KL., York, I., and Goldberg, AL. 2004. Post-proteasomal antigen processing for MHC class I presentation. **Nature Immunology**. 5: 670-77
30. Rock, KL, Hearn, A., Chen, C., and Shi, Y. 2004. Natural endogenous adjuvants. **Springer Sem. Immunopathology**. 26: 231-246.

Curriculum Vitae Continued: Dr. Kenneth L. Rock

31. Rock, KL, and Shen, L. 2005 Cross-presentation: underlying mechanisms and role in immune surveillance. *Immunol. Rev.* 207: 166-83
32. Shen, L., and Rock, KL. 2006 Priming of T cells by exogenous antigen cross-presented on MHC class I molecules. *Curr. Opin Immunol.* 18: 85-91.
33. Rock, KL. 2006. Exiting the outside world for cross presentation. *Immunity.* 25: 523-525
34. Rock, KL. and Kono, H. 2007. The inflammatory response to cell death. *Ann. Rev. Path.* In press.
35. Rock, KL. and Kono, H. 2007. How dying cells alert the immune system to danger. Submitted.

Patents (Awarded)

1. Rock, K.L. Class I MHC restricted T-T hybridomas. (US 521, 836)
2. Rock, K.L. Method for enhancing the association of exogenous peptides with class I MHC molecules. (US 07/521, 576)
3. Faló, L.D.Jr. and Rock, K.L. Induction of CTLs specific for natural antigens by cross priming immunization. (US 08/675,332).
4. Rock, K.L. Compositions and methods for inducing cytotoxic T lymphocyte responses by immunization with protein antigens. (US 003233; US 6,328,972 B1))
5. Rock, K.L. and Fernandes, D. Antitumor antibodies, proteins and uses thereof. (US 6,693,176 B1)
6. Faló, L.D.Jr. and Rock, K.L. Stimulation of cell-mediated immune responses by targeted particulate genetic immunization (US 7,176,186)

Patent Applications.

1. Goldberg A. and Rock K.L. Role of ATP-ubiquitin-dependent proteolysis in MHC-1 restricted antigen presentation and inhibitors thereof. (US 08/016, 066)
2. Rock, K.L. and Goldberg, A. Modulation of MHC class I antigen presentation.
3. Rock, K.L. and Shi Y. Endogenous adjuvant molecules and uses thereof

Current grant support

NIH R01 AI50643-04; Immunobiology of Antigen Presenting Cells *In Vivo*;
6/1/02-5/31/07; \$225,000 (Direct/yr)

NIH R37 AI20248-24; Immunobiology of MHC Restriction of T Cells; 8/1/83-
1/31/08; \$200,000 (Direct/yr)

NIH R01 AI43543-08; Immunobiology of CTL Responses to Exogenous
Antigens"; 3/1/99-3/31/09; \$250,000 (Direct/yr)

NIH P01 DK53006-09; Mechanisms of Islet Transplantation Tolerance, P.I.
project 4; 5/1/03-11/30/07; \$133,252 (Direct/yr)

Curriculum Vitae Continued: Dr. Kenneth L. Rock

NIH P01 AI057784-03; Adjuvants & Toll-like Receptors in Vaccine
Development and... Overall P.I. and P.I. Project 1; 5/1/04-4/30/09;
\$260,734 (Direct/yr)

Pending grant support